

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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PCT

## NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

19.10.2005

Applicant's or agent's file reference  
4197PTWO/AG/a

## IMPORTANT NOTIFICATION

International application No. PCT/EP2004/051339	International filing date (day/month/year) 02.07.2004	Priority date (day/month/year) 02.07.2003
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Applicant  
DANIELI & C. OFFICINE MECCANICHE S.P.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/B/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



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**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 4197PTWO/AG/a	<b>FOR FURTHER ACTION</b>	
See Form PCT/IPEA/416		
International application No. PCT/EP2004/051339	International filing date ( <i>day/month/year</i> ) 02.07.2004	Priority date ( <i>day/month/year</i> ) 02.07.2003
International Patent Classification (IPC) or national classification and IPC B22D11/06, B22D11/103		
<p>Applicant DANIELI &amp; C. OFFICINE MECCANICHE S.P.A. et al.</p>		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> <i>(sent to the applicant and to the International Bureau)</i> a total of 1 sheets, as follows:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>		
Date of submission of the demand  17.06.2005	Date of completion of this report  19.10.2005	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Baumgartner, R Telephone No. +49 89 2399-7953	



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/EP2004/051339

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

### Description, Pages

1-6 as originally filed

### Claims, Numbers

1-6 filed with telefax on 05.10.2005

### Drawings, Sheets

1/2, 2/2 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/051339

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes:	Claims	1-6
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-6
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-6
	No:	Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/EP2004/051339

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. State of the art**

D1: WO 03/051560 A (ECKERSTORFER GERALD ;HOHENBICHLER GERALD (AT); HOEDL HEINZ (AT); M) 26 June 2003 (2003-06-26)  
D2: DE 863 119 C (VER LEICHTMETALL WERKE GES MIT) 15 January 1953 (1953-01-15)  
D3: FR-A-1 447 139 (HAGENBURGER CHAMOTTE TON) 29 July 1966 (1966-07-29)  
D4: US-A-6 095 233 (LEABEATER STEPHEN BRUCE ET AL) 1 August 2000 (2000-08-01)

**2. Novelty and inventive step**

The document D4 is now regarded as being the closest prior art to the subject-matter of claim 1, and shows a drop feed device for feeding a twin-roll continuous casting ingot with the features of the preamble of claim 1.

The subject-matter of claim 1 differs from this known device by the three tank setup according to the characterizing portion and is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention is to provide a more uniform, homogenous and non-turbulent distribution of the molten metal.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

The devices according to D1 and D2 function in the same ways as present claimed feed device. They comprise a central tank, to which the molten metal is supplied and at least two tanks at the ends of the distributor, separated by walls, to which the molten metal flows after having filled the first tank. The latter tanks feed subsequent ingot moulds, but one

tank feeds one separate mould, and these are conventional continuous casting moulds.

Therefore, none of the cited prior art documents discloses the claimed three tank setup for feeding **one** ingot mould of a **twin roll casting machine**.

An inventive step is therefore acknowledged (Article 33(2) PCT).

Dependent claims 2-6 also meet the requirements of the PCT with respect to novelty and inventive step.

**Re Item VII**

**Certain defects in the international application**

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D4 is not mentioned in the description, nor are these documents identified therein.
2. The description is not in conformity with the amended claims as required by Rule 5.1(a)(iii) PCT.

**New claims**

1. A drop feed device (1), for a two-roll continuous strip casting machine, for feeding one ingot mould (15) with molten metal, comprising a distributor (3),  
5 having a substantially prismatic shape with one of the faces open and having a rectangular shape in plan view, with holes (10) arranged on one or more side walls of the distributor (3) characterized in that the inside of the distributor (3) comprises at least three tanks (4, 5, 6), arranged along its longer dimension wherein two first tanks (4, 6) are arranged at the end of the distributor (3) and at least one further tank (5) is set in an intermediate position with respect to the two first tanks (4, 6),  
10 in which the further intermediate tank (5) is separated from the two first tanks (4, 6) by respective separating walls (7, 8), whose dimensions are such as to cause their edges (7', 8') to perform a function of weir for passage of the molten metal between said intermediate tank (5), when it is full, and said two first tanks (4, 6),  
15 and in that the holes (10) are arranged in such a position and are of such dimensions and shape as to be able to perform a function of emptying the molten metal from said two first tanks (4, 6) towards the outside of the distributor (3) before reaching a level equal to that of the edges (7', 8') of the separating walls (7, 8).  
20 2. The drop feed device according to Claim 1, wherein the holes (10) are substantially elongated having the shape of a slot.  
3. The drop feed device according to Claim 1, wherein a further distributor (12) is provided having an elongated, substantially prismatic shape, designed to be set between said distributor (3) and an ingot mould (15).  
25 4. The drop feed device according to Claim 3, wherein a discharger (2) is provided, which is designed to discharge molten metal from a tundish or other container into the intermediate tank of the distributor (3).  
5. The device according to Claim 4, wherein the discharger (2) has a substantially funnel-like shape, and the angle of divergence of the internal walls of the  
30 discharger is less than 7°.  
6. The device according to Claim 1, wherein some or all of the faces of the distributor (3) are mutually convergent.